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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,708	11/12/2003	Chin-ming Chen	JLINP174	9264

25920 7590 10/06/2006

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EXAMINER

CIRIC, LJILJANA (LIL) V

ART UNIT	PAPER NUMBER
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3744

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/712,708

Applicant(s)

CHEN ET AL.

Examiner

Ljiljana (Lil) V. Ciric

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2006 and 07 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 4-9 and 15-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 10-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of second species, or the embodiment of Figures 4 and 5, in the reply filed on July 7, 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Also, in the election filed on July 1, 2006, applicant has stated that claims 10 through 20 are readable on the elected second species, or the embodiment of Figures 4 and 5. However, upon closer inspection and reconsideration, the examiner notes that claims 1 through 3 and 10 through 14 are readable on the elected second species or the embodiment of Figures 4 and 5. Note that the elected second species or the embodiment of Figures 4 and 5 has a heating element 32 and an enlarged portion 34 at one end of the shaft or heat pipe 16, but has neither a base 20 nor teeth 28. Thus, claims 4 through 9 and 15 through 20 are NOT readable on the elected species.

2. Claims 4 through 9 and 15 through 20 are thus withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected first species or the embodiment of Figures 2 and 3, there being no allowable generic or linking claim. Election was made **without** proper traverse in the reply filed on July 7, 2006.

Response to Arguments

3. Applicant's arguments filed on March 1, 2006 with respect to the previously rejected claims have been considered but are moot in view of the new grounds of rejection presented herein.

Allowable Subject Matter

4. The indicated allowability of claims 2 and 14 is withdrawn in view of the newly discovered reference(s) to Siemens AG, for example. Rejections based on the newly cited reference(s) follow.

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Priority

5. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: reference number 14 corresponding to the stator assembly shown in Figure 5 does not appear in Figure 5. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

7. The abstract of the disclosure is objected to because it fails to summarize the invention in full. For example, the abstract makes no mention of the shaft being a heat pipe. Correction is required. See MPEP § 608.01(b).

8. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

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The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

9. The disclosure is objected to because of the following informalities, for example: "an" immediately preceding "forced-convection" [page 2, line 18, page 6, line 4]; "of the heat pipe" should be inserted immediately following "the other end 16a" [page 4, lines 12-13] for improved clarity and readability; "10,firstly," [page 4, line 15] should be replaced with "10, firstly" (a space should be added between "10," and "firstly"); "served" [page 4, line 18] should be replaced with "serves"; "locates" [page 5, line 10] should be replaced with "is located"; "raises" [page 6, line 1] should be replaced with "rises"; "are served" [page 6, line 10] should be replaced with "serve"; and, "but a heat sink" [page 6, line 10] should be replaced with "but also as a heat sink".

Appropriate correction is required.

10. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are, for example: "once the teeth 28 *are arranged according to the air flow path*" [page 6, lines 9-10]; "the design of the fan shaft *adopts* materials with high thermal conductivity such as a heat pipe 16" [page 7, lines 1-2]; and, "when a fan shaft *adopts* a heat pipe 16, it is also possible for the rotor 12 *to adopt* materials with high thermal conductivity and low specific weight" [page 7, lines 14-16].

Claim Objections

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11. Claims 1 through 3 and 10 through 14 are objected to because of the following informalities, for example: “form materials” [claim 1, line 5] should be replaced with “from materials”; the Markush-type limitation “is selected from the group of aluminum, copper, aluminum alloy, copper alloy and their compounds” [claim 3, lines 2-3; claim 12, lines 2-3] should be replaced with the properly formatted Markush-type limitation “are selected from the group consisting of aluminum, copper, aluminum alloy, copper alloy and compounds thereof”; and, “of the shaft” should be inserted immediately following “to the second end” [claim 10, line 7]. Appropriate correction is required.

Claim Rejections - 35 USC § 112

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claims 1 through 3 and 10 through 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claims 1 through 3 and claims 10 through 14, the term "high" in the limitation “high thermal conductivity” in the claims is a relative term which renders the claims indefinite. The term “high thermal conductivity” is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. In particular, one skilled in the art would normally classify most common metals as having “high” thermal conductivity. The specification provides possible examples of materials considered to have high thermal conductivity--including aluminum, copper, and alloys thereof, as well as heat pipes (even though heat pipes are not a material, per se), yet the specification fails to clearly define what is included and what is excluded by the relative term “high” as used in the limitation “high thermal conductivity” in the claims. For example, would a heat pipe having a steel casing (and not an aluminum nor a copper nor an aluminum alloy nor a copper alloy casing) be encompassed within the intended

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meaning of the limitation “high thermal conductivity” as used in the claims of the instant application? Thus, as used to qualify the degree of thermal conductivity characterizing the materials from which the shaft and the rotor may be made, the relative term “high” renders the same indeterminate and the claims indefinite.

With regard to claims 10 through 14, the limitations “a shaft made from materials with high thermal conductivity having a first end *connecting to a heating element and an opposite second end*” in lines 2-3 of base claim 10 are not clear as written, thus rendering indefinite claim 10 and claims 11 through 14 depending therefrom. In particular, it is not clear whether the aforementioned limitations are intended to recite that the shaft has a first end and a second end, where the first end is connected to a heating element, or to recite that the shaft has a first end, where the first end is connected to both a heating element and to an opposite second end of either the shaft or of some other element. If the intent of the aforementioned limitations is to recite the former, then recommend replacing these limitations with the limitations “a shaft made from materials with high thermal conductivity, the shaft having a first end and an opposite second end, the first end of the shaft being connected to a heating element” or similar.

14. Claims 10 through 14 are also rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: any structural element(s) necessary to keep the rotor “a fixed distance from the stator assembly through magnetic interaction” as recited in lines 5-6 of base claim 10, from which claims 11 through 14 depend.

Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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16. As best can be understood in view of the indefiniteness of the claims, claims 1 through 3 and 10 through 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Siemens AG (CH 516 251).

Siemens AG (CH 516 251), particularly Figure 3, discloses the inventive heat dissipation module essentially as claimed, including, for example: a fan 19 having a hollow shaft 2 (formed in part by heat pipe 18), the first end of the shaft 2 comprising an enlarged portion embodying heat pipe 18 and penetrating the hub of fan 19, the first end of the shaft 2 also connecting to a heating element (i.e., the electrical machine being cooled, such as the coils of rotor 3) at evaporative section 7 of the heat pipe 18; a heat sink 16 connected to the second end of shaft 2; a stator assembly 4 fixed on the shaft 2; a rotor 3 pivotally joined to the shaft 2 at a fixed distance from the stator assembly 4; and, the heat pipe 18 and shaft 2 being made of a highly conductive material such as aluminum or copper.

The reference thus reads on the claims.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Corman et al. discloses a typical heat pipe.

Taylor and Jacobson et al. each discloses a heated roller incorporating a heat pipe as a part of the roller shaft.

Fries (both references), Gray (both references), Lloyd et al., Bailey (especially Figures 20 and 21), Kantor, Okamoto, Coquillart, Oyama et al., Yerkes, Itoh, Dinh, Khanh, Stephens et al., Batchelder, Snyder et al., and Katsui each discloses a heat pipe in the form of a shaft disposed within a heat generating machine or system to control the temperature of the same.

Hitachi Ltd. and Shimadzu Corporation each discloses a rotary machine or motor including a shaft equipped with a heat pipe, a fan, and a heat sink.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ljiljana (Lil) V. Ciric whose telephone number is 571-272-4909. The examiner is on a

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flexible work schedule, but can normally be reached most weekdays between the hours of 10:30 a.m. and 6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Keasel can be reached on 571-272-4929. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Ljiljana (Lil) V. Ciric
Primary Examiner
Art Unit 3753

lvc